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ABSTRACT

Ten elementary school teachers were observed twelve times throughout a single school year in order to investigate the ways in which teachers make decisions and eventually develop their distinctive individual teaching styles. In nearly all cases, the teachers used a materials-based recitation pattern of teaching characterized by high task-orientation, directive procedures, and a focus on factual information. There were stylistic variations in management of the recitation, such as the use of corrective feedback, increased attention to concepts, and negotiation within the goals originally established by the teacher, but for the most part the recitation approach was stable across teachers and time. Approaches to high and low ability groups were similar. However, styles for handling procedures were more varied in subject areas other than reading. Also, ratios of attention to feedback, structuring, and information-processing fluctuated considerably across time, while still remaining within the parameters of the overall recitation pattern. (Authors/LH)

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TEACHING STYLES AT SOUTH BAY SCHOOL:
THE SOUTH BAY STUDY, PART I

Bruce Joyce and Kathleen McNair

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Abstract

This investigation into commonalities and varieties of teaching styles is part of a larger inquiry aimed at generating paradigms for the study of how teachers think and make decisions as they teach. The data obtained from case studies of 10 elementary school teachers working in grades 1-5 at South Bay School in the San Francisco Bay Area.

Each teacher was observed 12 times during the year using the Teacher Innovator System (TIS) designed to permit a description of the styles and strategies employed by teachers in classrooms. In nearly all observations, the teachers used a materials-based recitation pattern of teaching characterized by high task-orientation, directive procedures, and a focus on factual information. There were variations in stylistic differences in ways of managing the recitation (use of corrective feedback, attention to concepts, or negotiation within established goals).

The recitation approach was stable across teachers and time. Approaches to high and low ability groups were similar. However, styles for handling procedures were more variable in subject areas other than reading. Also, ratios of attention to feedback, structuring, and information-processing fluctuated considerably across time, but remained within the recitation pattern.

AN INTRODUCTION TO THE SOUTH BAY STUDY¹

Greta Morine-Dershimer and Bruce Joyce²

Studies of teaching have, for the most part, concentrated on the visible events in classrooms and other places where teaching takes place. Over 100 systems have been developed to record and categorize teacher and student behavior in a variety of ways.³ The use of these systems has resulted in a growing field of knowledge about the visible behavior of teachers and students as they interact with one another.

Teaching as Behaving: The Visible Acts

The results of inquiries into teaching can be interpreted from several points of view.

One interpretation suggests that extremely strong normative pressures operate to shape teaching behavior. These pressures have great force in the early years of a teacher's career (including the training period).

¹This introduction is included, in its entirety, in all four IRT published reports on the South Bay Study: Teaching Styles at South Bay School: The South Bay Study, Part I (Res. Ser. No. 57), B. Joyce and K. McNair; Teachers' Thoughts While Teaching: The South Bay Study, Part II (Res. Ser. No. 58), K. McNair and B. Joyce; Teachers' Conceptions of Pupils: The South Bay Study, Part III (Res. Ser. No. 59), G. Morine-Dershimer; and Teacher Plan and Classroom Reality: The South Bay Study, Part IV (Res. Ser. No. 60), G. Morine-Dershimer.

²The researchers in the South Bay Study were Greta Morine-Dershimer of Syracuse University, Bruce Joyce of Booksend Laboratories, and Kathleen McNair of the California State Department of Education.

³See Anita Simon and Gil Boyer (Eds.), Mirrors for Behavior. Philadelphia: Research for Better Schools, for a compendium of instruments.

They move teachers toward what Hoetker and Albrand (1969) have termed a "recitation style"⁴ of teaching. This interpretation emphasizes the finding that many teachers appear to use similar approaches (usually variations on the recitation style).

Other researchers have reported that variety in teaching is associated with pupil learning (e.g., Flanders, Note 1), suggesting that those who are not completely co-opted into the recitation style are more effective teachers because their wider repertoire enables them to reach more learners and pursue more goals than those who use only one style.

Dunkin and Biddle (1974) have organized their research somewhat differently, providing a picture of the relationships between variations in teaching style and skill and measures of effectiveness (usually measures of student learning). These authors are generally pessimistic because correlations between measures of teacher behavior and student learning are frequently quite low.

Rosenshine (1971), on the other hand, has taken an optimistic view, emphasizing that a number of studies of certain teaching "skills" report positive correlations with measures of student learning.

Gage (1978) presents research on teaching as a growing base of understanding. He believes that teaching is a complex art which science informs gradually. To expect a few dimensions of teaching to correlate directly and highly with any few measures of pupil learning, he says, belies both its many-sidedness and the state of development of inquiry into it.

Gage's view that teaching is complex, and that concepts describing it will have to reflect that complexity is supported by the findings of

⁴ A style in which the teacher asks questions to elicit knowledge of facts, and the student responds in kind (Hoetker & Albrand, 1969).

several recent studies. For example, McDonald and Elias, Note 2) and Berliner (1976), in separate phases of the same large, long-term investigation, report evidence that clusters or patterns of teacher behaviors may be associated with complexes of variables of student achievement. They suggest that single aspects of teacher behavior are unlikely to be powerful determinants of student learning.

There are still other questions about stability of teaching styles, that is, how consistently teachers behave over time. Medley (1977) has reported that a number of teaching style dimensions are relatively stable (that measures of teaching behaviors at one point in time are correlated with those measures at another point in time). Shavelson (1976), on the other hand, argues that the correlations between aspects of teacher behavior across time are moderate -- too low to permit characterization of teachers in terms of style regularities. We (the South Bay Study researchers) believe that certain aspects of teacher behavior are reasonably stable across time (Medley's position), and that there are probably clusters of teacher behavior which are related to certain aspects of student achievement (McDonald & Berliner's opinion). Research must go a long way, however, before causal relationships can be established between important dimensions of teacher behavior and student achievement, even though knowledge is accumulating.

Teaching as Thinking: The Inner Acts

In sharp contrast to the large amount of research on the observable aspects of teaching behavior is the tiny quantity that has been devoted to the study of how teachers think -- how they process information. What do teachers think about the individuals they interact with? What kinds of decisions do they make? What kinds of information do they receive from the

confusing world of the classroom, and how do they deal with that information? How do teachers plan lessons and units? What constraints do they perceive? How many alternatives do they consider? How do they categorize their students and why?

Most of the tiny group of studies on teacher thinking have not been designed from a naturalistic point of view. Zahorik (Note 3) points out that planning has typically been studied from a prescriptive stance, focusing on ideal models and recommendations rather than how teachers in practice typically prepare for lessons. For example, much research on preactive decision making has assumed that teachers diagnose student learning, develop behavioral objectives, and otherwise follow classic "instructional-systems" models. But naturalistic investigations have indicated that very few teachers actually use such a behavioral analysis in preparing for their lessons (Popham & Baker, 1970).

Fifteen years ago, Joyce and Harootunian (1966), studying the decision-making processes of preservice teacher candidates, discovered that the major decisions were made in relation to instructional materials for children. The teachers' major sources of information about science came from children's literature rather than from adult-oriented books or manuals that accompany the instructional systems prepared by textbook publishers. Scientific knowledge about the kinds of information that teachers use for making "inflight" decisions is almost nonexistent.

Except for the investigations by Clark and Joyce (1979), Crist, Marx, and Peterson (Note 4), and Morine-Dershimer and Vallance (Note 5), there have been almost no studies of information processing during teaching prior to this study. Thus, although overt teacher behavior has been subjected to analysis by numerous category systems, there are few ways of classifying the kinds of teacher thinking that go on regularly during the course of teaching. Yet, until the thoughts and feelings which occur

during teaching are explored, the visible observed behaviors may not be understood.

When a teacher asks a question, an observer can record the visible behavior clearly enough without understanding the mind that formulates the question. However, the result is only a record. Unless the thought behind the utterance is known, little can be known about what caused it. If researchers and educators care to use information about teaching as a basis for improving it, they need to understand why teachers behave as they do.

The investigation reported here builds on this limited body of research to explore and try to explain relationships between the teaching styles of a small group of teachers in one school and the types of information those teachers seek and use as they teach.

Relationship to Prior Studies

The South Bay Study builds directly on two prior studies, one directed by Joyce at Stanford University (Clark & Joyce, 1979; Crist, Marx, & Peterson, (Note 4), and one conducted by Morine-Dershimer at the Far West Laboratory for Educational Research and Development (Morine & Vallance, Note 5; Morine-Dershimer & Vallance, Note 6).

The Stanford study examined teacher decision making in a laboratory setting. Twelve teachers taught new instructional units to junior high school students previously unknown to them. They taught each unit to three different groups of eight students each on three different days. Teacher planning (Peterson, Marx, & Clark, Note 7), interactive decision making (Clark & Peterson, Note 8), and teacher judgment of pupils (Marx, Note 9) were all examined in this study.

The Beginning Teacher Evaluation Study (BTES) conducted by the Far West Laboratory examined teacher decision making in a semi-controlled setting. Forty elementary school teachers identified as "more effective" or "less effective" (Berliner, Note 10) taught two lessons based on curriculum content new to them to a randomly stratified sample of pupils from their own classrooms; later, they engaged in some simulated planning tasks. Teacher planning (both short-term and long-term), interactive decision making, teacher judgments of pupils, teacher judgments of other teachers, and pupil perceptions of teachers were all examined.

The Stanford and BTES studies used somewhat different techniques to collect data on teacher decision making, and arrived at complementary findings. The South Bay Study incorporated some data collection procedures from these earlier studies, as well as instituting some new procedures. The similarities and differences are described here to illustrate the continuity of these three studies.

The Investigation of Short-Term Planning

In the study directed by Joyce at Stanford, teachers were given new curriculum materials and a period of time in which to plan a day's unit of instruction. The teachers were asked to "think aloud" as they planned; their oral planning was tape recorded and later coded under categories such as objectives, materials, subject matter, and process. The study's results indicate that teachers spent most of their planning time dealing with content to be taught. The teachers' second largest area of concentration was on instructional processes (teaching strategies and lesson activities). The smallest proportion of their planning time was spent on identifying lesson objectives.

In the BTES, Morine-Dershimer collected teachers' written plans for two lessons in mathematics and reading, both dealing with content provided by researchers and new to teachers. These plans were analyzed

to determine degree of specificity, type of format, amount of attention to goals, pupil readiness, evaluation procedures, and alternative procedures. Teachers tended to be fairly specific in their written plans and used an outline format, but they included very few statements regarding behavioral goals, diagnosis of student needs, evaluation of learning, or possible alternative activities. The "more effective" teachers made more specific statements in their written plans, and mentioned instructional processes to be used more often than the other teachers did.

In the South Bay Study, teachers planned and taught lessons in reading, following the curriculum they normally used, to groups of pupils in their own classrooms. These teachers were interviewed about their plans in the morning before their reading lessons began. They described their general plan, and then answered questions about diagnosis of pupil needs, use of instructional materials, specific lesson objectives, teaching strategy, and seating arrangements. While diagnosis of pupil needs, lesson objectives, and seating arrangements were seldom mentioned in the initial plan statements, teacher responses to probing questions clearly demonstrated that these aspects of the lessons were not being ignored but rather, were part of their "mental image" or set of expectations for the lesson.

The Investigation of Interactive Decision Making

In the Stanford study, interactive decision making was investigated by use of a "stimulated recall" technique. An interviewer showed each teacher four brief (two to three minutes long) videotaped segments of classroom interaction, randomly selected from a 50-minute lesson. After viewing each segment, the teacher answered a series of questions, as follows:

1. What were you doing here?
2. What were you noticing about pupils?
3. Did you have any instructional objectives in mind at this point?

4. Were you considering any alternative actions here?
5. Was there anything in this situation that caused you to behave differently than you had planned?

The principal findings were: (1) teachers considered alternative strategies only when the lesson was going poorly, (2) the primary cue used to judge how well the lesson was going was student participation and involvement, and (3) teachers rarely changed from their planned strategy, even when instruction was going poorly.

The BTES also used a stimulated recall technique to explore interactive decision making. But in this case the entire 20-minute lesson was videotaped and played back to the teacher, who was instructed to stop the tape at any point at which s/he was aware of having made a decision. In addition, the interviewer stopped the tape at a point where a pupil gave an incorrect answer and a point where there was a transition from one activity to another. At each decision point the teacher was asked:

1. What were you thinking about here?
2. What were you noticing that made you stop and think?
3. What did you decide to do?
4. Did you consider any alternatives?

The decision points identified by teachers in this study were related mainly to interchanges (decisions stemming from immediate verbal interaction) or planned activities (interactive decisions stemming from preactive decisions). Teachers focused on instructional process in discussing the substance of their decisions, but shifted to a focus on pupil characteristics when discussing the basis for these decisions. Few alternatives were considered. The "less effective" teachers tended to mention a larger number of items that they were taking into account on almost all aspects of decisions discussed than the "more effective" teachers. That is, they appeared to be attempting to process more information at a given

decision point than the "more effective" teachers.

The South Bay Study incorporated some techniques from both previous studies in conducting stimulated recall interviews, as well as adding some new investigative procedures. A teacher was videotaped during two reading lessons on the same day, one with a high ability group, and one with a low ability group. At the end of the day both lessons were played back to the teacher, first using two random stops for each lesson (as in the Stanford study), then playing the entire lesson back, stopping the tape at teacher-identified decision points (as in the BTES). Interviews were conducted at four different points in the school year, to investigate changes over time. Interactive behavior during lessons was observed and coded to compare teacher decision making with classroom behavior.

The Investigation of Teacher Judgments About Pupils

Teachers in the Stanford study were asked after each new lesson they taught to predict the rank-order of their students in that lesson on a cognitive achievement test and an attitude inventory, which were administered after the third teaching episode. (The students were unknown to the teachers before the lesson, and each lesson was taught to a different group of pupils.) In addition, teachers were asked to describe the student cues they used in making these predictions. The most frequently mentioned cue was "student participation." Regression equations using the behavioral cues identified by teachers were not good predictors of actual student achievement or attitude inventory results. Findings suggested that teacher judgments about student attitudes were more accurate than their judgments about cognitive achievement.

In the BTES, a "pupil sort task" was used to explore teacher judgments about pupils. After teaching two new lessons to their students, teachers were asked to sort their pupils into groups based on something

they had observed about pupils during the lesson. The procedure was repeated until the teacher could think of no new basis for regrouping pupils. The most frequently used basis was pupil participation. The "more effective" teachers generated more groupings using cognitive characteristics as bases for categorizing, and also formed more groups where a pupil was singled out as being too different on a given characteristic to be grouped with other pupils.

The South Bay teachers were interviewed using the pupil sort task at five different points in the school year; this was done to explore changes over time in pupil characteristics being observed. Teachers were asked to predict pupil success in reading three times (September, November, and June). These predictions were compared to pupil performance on standard achievement tests to determine "accuracy" of teacher judgments. The predictions were compared to teacher rankings of pupils on other teacher-identified pupil characteristics to identify the cues used by teachers in making predictions.

The Continuity of Investigation

The three studies can be viewed as a series of investigations which explore a basic set of questions, using somewhat different research settings and data collection techniques. The findings of the first two studies complement and support each other in important ways. The findings of the South Bay Study extend, refine, and throw new light on the findings of the earlier exploratory studies. In addition, the results of the South Bay Study suggest new questions for future research.

The Purpose of the South Bay Study and Background Information

Our major objective in this study was to develop one or more paradigms for viewing the ways that teachers process information, and

to generate and adapt methodologies by which information processing can be studied efficiently and comprehensively. The South Bay Study is essentially a case study of a single elementary school in a large metropolitan area. It focuses on the variety and stability of the information-processing behavior of 10 teachers.

The South Bay School is staffed by 20 teachers, a principal, an assistant principal, and two secretaries: it is served by three specialists who are shared with other schools. The school qualifies for extensive ESEA Title I (federal) and SB 90 EDT (state) funds by virtue of the economic conditions of its neighborhood.

In recent years, state and national funds have resulted in teachers' participation in the selection and purchase of extensive instructional materials, especially in the areas of reading and mathematics. These include self-instructional stations for reading and arithmetic, "concrete aids," "supplementary readers," and a variety of audiovisual materials and "skill-builders."

The 10 teachers who participated in the study teach grades one to five. One of them was male; nine were white and one was black. All 10 teachers had taught for at least three years. Teachers designated as 101, 102, and 103 taught first-grade; Teachers 104 and 105 taught third grade; Teacher 106 taught fourth-grade; Teachers 107 and 108 taught fifth-grade; and Teachers 109 and 110 taught special education.

Study Design and Methodology

The South Bay Study examined three aspects of teacher behavior and thinking:

1. Interactive teaching styles, as revealed by observation of verbal interaction, including an examination of variations between teachers and stability of styles over time.

"How do the teachers teach?" "How are they similar?" "How do they differ?" "How consistently do they teach?"

2. Thought processes while teaching, as revealed through "stimulated recall" techniques.

"What do they think about as they teach?" "How similarly (differently?) do they think?" "How consistent are their thoughts over time?"

3. Teacher conceptions of pupils, as revealed by categories used to describe students and predict their behavior.

"How do they describe the children?" "How similarly (differently?) do they perceive the children?" "How (and how well) do they predict performance?"

The Investigation of Teaching Styles

Each of the 10 teachers was observed 12 times in the course of the 1976-77 year for a total of 120 observations.

Observers were trained to use a complex category system developed over the years that is sensitive to variations in teaching style and strategy.⁵ Data collected were analyzed to describe similarities and differences among teachers and across time, to determine stylistic differences between curriculum areas, and to determine whether the transactions between teachers and students varied with student ability. The purpose of this aspect of the investigation was to develop a picture of the teaching going on in the school, and its stability and variety.

The Study of Information Processing

Altogether, 60 lessons were videotaped as the teachers worked. Each of these tapes was played back to the teacher concerned and s/he was interviewed to recapture the thoughts that were in his/her mind as events occurred during the videotaped episode. The protocols derived from these "stimulated recall" interviews formed the basis for the descriptions of interactive information processing. Analysis of these protocols focused on the content of the recalled thoughts and was structured to determine similarities and differences among the teachers and across time, between subject areas, and between ability groups of students. In addition, we

⁵This system is described in Appendix A of Part I.

attempted to determine relationships between teachers and decision making styles.

We also interviewed teachers to determine their perceptions of their own teaching styles and information-processing behavior. Characterizations were developed of the teaching and information-processing styles of each teacher, and these were reported to the teacher for confirmation or disconfirmation.

Conceptions of Pupils

On five occasions throughout the school year, the teachers were asked to categorize their students and describe the bases they used for observing the children as they worked with them (what cues they used, how they put together those cues to describe the children, and the meaning of these descriptions for their teaching decisions). These data were analyzed to determine normative tendencies, differences between teachers, and the stability of characterizations of the students across time. We also analyzed the data to try to learn how teachers arrived at their characterizations of students, whether or not changes resulted from continued exposure to the children, and the influence of a variety of sources of information about pupils (direct observation, conferences with parents, test scores, etc.).

Organization of the Report

The report of the South Bay Study is organized into four separate papers:

1. The Teaching Styles at South Bay School: The South Bay Study, Part I by B. Joyce and K. McNair. This paper focuses primarily on the general patterns of teaching styles in the South Bay School. The patterns exhibited are those of the "recitation method," or in current parlance, "direct teaching."

2. Teachers' Thoughts While Teaching: The South Bay Study, Part II

by K. McNair and B. Joyce. This paper examines teachers' thought processes while teaching. Stimulated recall interviews of teachers were used to obtain data for analysis.

3. Teacher Conceptions of Pupils -- An Outgrowth of Instructional Context: The South Bay Study, Part III by G. Morine-Dershimer. This paper reports the general patterns of teacher processing of information about pupils, including teacher conceptions of pupils and predictions of pupil success. The influence of the instructional context on teacher information processing is highlighted.

4. Teacher Plan and Classroom Reality: The South Bay Study, Part IV by G. Morine-Dershimer. This paper focuses primarily on an analysis of relationships among interactive behavior, interactive decision making, and interactive processing of information about pupils within specific lessons. The influence of the discrepancy between the teacher's expectations and the actual events in the lesson on teacher decision making is illustrated in three case studies.

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Teaching Styles at South Bay School: The South Bay Study, Part I

Bruce Joyce and Kathleen McNair¹

Teachers make decisions that pertain to both immediate situations and the distant future. The sorts of decisions of interest in this study are relatively short-term. They include preactive decisions (those which take place shortly before instruction begins), and interactive decisions (those which occur during the instructional process). This distinction was introduced by Philip W. Jackson in his 1974 paper, "The Way Teaching Is."

As Morine (Note 1) points out, although many of the components of preactive thinking have been identified, researchers have paid little attention to the process of instructional planning or to the actual teacher concerns that affect it. What teachers actually do when planning and what effects those plans have on classroom interaction remain to be investigated. According to Zahorik (Note 2), preactive planning has typically been dealt with on the prescriptive level, with the focus on idealized models and recommendations rather than how teachers, in practice, typically prepare for lessons. Though much research on preactive planning has depended on the use of behavioral objectives, several investigations (Joyce & Harootunian, 1964; Popham & Baker, 1970) indicated that very few teachers use behavioral analysis as they prepare their lessons. It would be useful, then, to uncover what teachers really do think about when

¹Bruce Joyce is the director of Booksend Laboratories in Palo Alto, California. Kathleen McNair works with the California State Department of Education in Sacramento, California.

they prepare for class and why.

Research literature that pertains to teachers' interactive decision making is also sparse. Our scientific knowledge about the kinds of information or cues that teachers use when making "inflight" decisions is almost non-existent. The recent investigations by Clark, Peterson, Marx, Joyce, and Morine-Dershimer have generated the antecedents of the methodology used in the present study (see "An Introduction to the South Bay Study," which is included in this publication).

Though teacher behavior has been subjected to analyses by numerous category systems, no major category system exists for classifying the kinds of teacher thinking we believe occur regularly in teaching. To build such a system, more knowledge is needed about the thought processes and the types of information teachers seek and use as they teach. Only after that step is taken can studies be done of the similarities and differences among teachers with respect to their information-processing behavior and the outcomes, if any, which are associated with those differences.

We employed direct observation to determine teaching styles. Observers documented aspects of the transactions between 10 elementary teachers and their students over the 1976-1977 academic year. The results are discussed in five sections: the general nature of teaching styles, individual differences in style among the teachers, the stability of these measures of style over time, the effect of subject matter on style, and the effect of student ability level on style.

Method

Subjects

As described in the Introduction, the 10 participating teachers taught grades one through five at the South Bay School in the San

Francisco Bay Area. Only one of the teachers is male. Nine of the teachers are white; one is black. All have taught at least three years.

The school is the site of an extensive Teacher Corps project operated cooperatively by a local state university, the school district, and the Far West Laboratory for Educational Research and Development located in San Francisco. Two of the study's principal investigators, Greta Morine-Dershimer and Bruce Joyce, were on the staff of the Teacher Corps Project at the time of the study.

South Bay School uses a staggered reading program in which the class is divided into two groups on the basis of reading achievement. The lower achievers attend school from 8:30 a.m. until 1:45 p.m., while the higher achievers attend school from 9:30 a.m. until 2:30 p.m. Thus, for the first and last hours of the day, only half of the class is present. Reading instruction takes place at these times. This practice provided us with an opportunity to compare teachers' styles during instruction in reading for high- and low-achieving children.

Procedures

Four observers² were trained to use the Teacher Innovator System (TIS). This system is a device for categorizing the communication of teachers and students and was designed to be sensitive to variations in teaching styles within different models of teaching (Joyce, 1977). The first version of the system was used in 1963 (Joyce & Harootunian, 1966) and it has been modified a number of times since then to ensure that it will effectively reflect variations in teaching strategies and styles (McKibbin, 1974).

²The observers were Brenda Fikes, Elizabeth Edwards, Beverly Showers, and Kathleen McNair.

We will assume that the reader is familiar with the three major dimensions of the system -- structuring, information-processing, and feedback -- and also the meanings of the 19 subcategories into which the communications of teachers and students are placed. (Descriptions of the categories and subcategories are included in the Appendix.) Essentially, the observer categorizes communication units (an utterance on one topic to one audience not to exceed 15 seconds) by identifying the source (teacher or student), the type of move (question or statement), and the category into which the communication falls.

The four observers were trained in a series of six sessions which introduced them to the categories, and in which they practiced coding using videotapes of teaching episodes. The tapes they practiced with included a diversity of teaching styles and strategies to ensure that they would be sensitive to a range of teacher behaviors. The observers achieved 95% agreement. After training, they used an "overlapping" coding schedule to provide a continuous check of reliability.

The 10 teachers were observed 12 times each for a total of 120 observations.

Results

Data from TIS Categories

General teaching styles. The TIS categories are presented in Table 1, ranked by the frequency of their occurrence over all observations. Altogether, more than 22,200 communications were recorded (approximately 180 per teacher per observation).

Level 1 information-processing communications accounted for 58% of all the communications recorded. Level 1 questions and statements elicit or provide factual information. Questions of this type do not

require the learner to develop concepts, state them, make inferences, or hypothesize.

A high concentration of Level 1 information-processing moves characterizes the recitation style of teaching in which the teacher asks lower-order questions and questions to elicit knowledge of facts and the student responds in kind (Hoetker & Ahlbrand, 1969). The dominance of these moves is evidence that the recitation method was probably the dominant mode at South Bay School.

Level 2 information-processing represented about one in 30 of all information-processing communications. Level 2 communications state a concept or elicit a statement of a concept from a student. They are characteristic of inductive and conceptual teaching models. Studies of teachers carrying out concept-oriented and inductive models of teaching have documented that about 200 out of the typical 500 communications which occur during a single hour of teaching are of the Level 2 type (Joyce, Weil, & Wald, 1973). That is low enough to warrant the conclusion that concept-oriented approaches were not being used.

Level 3 information-processing communications averaged not quite one for every 1000 communications. Level 3 communications state or elicit hypotheses, theories, or causal explanations. The general absence of such communications indicated that complex information-processing models of teaching were not being used during the periods of observation.

Communications categorized as open information processing and those that were solicitations or statements of opinion had a combined frequency of less than five per 1,000 communications. These two categories, together with Level 3 information processing, are characteristic of classrooms in which there is open discussion of issues and in which concept-building activities are dominant. Their absence indicated that

Table 1: Categories Ranked by Frequency of Occurrence Over All Observations

Rank	Category Name	Number	Percent of total
1	Level 1 information-processing (factual)	(9)	58
2	Instructional implementation	(7)	12
3	Procedures, directive	(5)	10
4	Positive feedback	(14)	6
5	Corrective feedback	(17)	3
6	Level 2 information-processing (conceptual)	(10)	3
7	Repeating	(18)	3
8	Neutral feedback	(15)	1
9	Non-instructional implementation	(8)	1
10	Content, directive	(3)	1
11	Digression	(19)	1
12	Open information-processing	(12)	0.4
13	Negative feedback	(16)	0.2
14	Goals and standards, directive	(1)	0.1
15.5	Content, negotiated	(4)	0.08
15.5	Level 3 information-processing	(11)	0.08
17	Procedures, negotiated	(6)	0.04
18	Opinion information-processing	(13)	0.03
19	Goals and standards, negotiated	(2)	0

no personal or social models of teaching were being employed (Joyce, & Weil, 1972).

It thus appeared that the information-processing communications in these classrooms were directed toward the mastery of specific facts rather than the development of concepts, speculation about issues, or the expression and exploration of attitudes and feelings. The lack of opinion-oriented information-processing communications also indicated that the classroom content was affectively neutral and that expressions of personal opinion were seldom given or sought during the observation period.

Instructional implementation was the second most frequently used category with about 12% of the total number of communications. *Implementation communications* are those which arrange the events and participants during a classroom activity. Calling on students, indicating specific details of activities to be done next, and giving short instructional commands are examples of *instructional implementation communications*.

The third most common category was *directive procedures*. This category contains communications in which the teacher or student determines procedures by identifying the content to be explored and the means by which it is to be dealt with. *Directive procedures*, when not balanced by indirect procedures, are characteristic of highly structured classrooms. Communications categorized as *negotiated content* ranked 15th, *negotiated procedures* ranked 17th, and *negotiated goals and standards* ranked last. Clearly, these classrooms were highly structured with relatively little negotiation of goals, standards, procedures, or content occurring.

Together, *directive procedures* and *instructional implementation* accounted for almost 25% of all communications. Combined, Level 1 information processing, *directive procedures*, and *implementation*

communications accounted for 80% of all of the moves which occurred in the transactions during the period of observation. What emerged was an overall picture of directive and straightforward teaching aimed at the mastery of facts. *Students asked only 20% of all questions posed during the period of observation.*

Positive and corrective feedback were the fourth and fifth ranked categories, respectively. Positive feedback is a reinforcement of a behavior, and corrective feedback is a communication which accepts the student's statement, but provides information about how it could be improved.

The occurrence of such a high proportion of corrective feedback also indicated a task-oriented classroom in which mastery is highly valued.

The occurrence of either neutral feedback, at 1% of the total observations, or negative feedback, at .3% of the total observations, is rare and indicates an atmosphere which is positive, if task oriented.

Biannual comparison. The observations before January (the mid-year point) were compared with those after January. The major difference appears to be an increase in the use of higher level conceptual communications (categories 10 and 11) in the second half of the year. However, the increases were from 2% to 4% and .01% to .2%, respectively, neither of which indicate a major style change, especially since the high percent of Level 1 information-processing communications remained the same.

Note also that the majority of the higher level communications in the post-January period came from single observations of two teachers and thus do not reflect a group-wide shift. Fifteen of the 16 Level 3 communications occurring after January occurred during one observation

of Teacher 110. There was a very slight increase in the amount of open information-processing communications, from .2% to 1% in the second half of the year, which may indicate a slightly more informal approach between teacher and students as the year progressed.

There was a decrease in communications pertaining to negotiated content, but since all of these communications came from one teacher during one lesson, we cannot infer a change over time for all teachers.

There was a decrease in corrective feedback and a slight increase in repetition, which could indicate an increase in the students' storehouse of correct factual information.

Differences among teachers. The uneven distribution of communications among the categories leads us to believe that the South Bay School teachers had styles that were more similar than different. In the following section, communications are broken down by teacher over the categories and the teachers are compared to each other more closely.

Level 1 information processing was the category of greatest use for all teachers. Implementation communications, directive procedures, and positive feedback were also highly prominent in all cases.

Teachers 102, 106, and 110³ generated relatively more Level 2 information-processing communications than did the other teachers. Teacher 106 provided about 90% of the Level 3 information-processing communications, though they only comprised about .8% of the total communications recorded in her room. Teacher 107 contributed practically all of the communications concerned with opinions, though they comprised only .29% of the total communications recorded in her classroom.

Teacher 102 was characterized by the use of considerable corrective feedback. Teacher 104 exhibited comparatively little positive

³See page xv of the *Introduction*, where subjects' assigned numbers are matched with descriptions and characteristics of individual participating teachers.

feedback, while Teachers 101, 109, and 110 used it most.

Teachers 103 and 104 generated a relatively high frequency of procedural communications except at the implementation level. Teacher 103 generated 17 of the 26 observed negotiated communications, while Teacher 107 provided 10 of the 24 directive goal statements.

These data indicate that although all of these teachers relied on the recitation method, within that method each one made small variations to suit his or her style. These variations were not wide enough, however, to contradict the contention that each teacher worked fairly closely within a didactic interaction pattern, in which "lessons to be learned" were paramount.

To further compare teachers' styles, correlations were computed on the basis of each teacher's use of a particular communication type over all observations. Each Teacher Innovator System category was ranked in terms of its use by each teacher. Then, rank order correlations of the categories by teacher were computed. Not only were all of the coefficients significant despite the small number of teachers, but the median coefficient was .90. The dominance of the recitation style of teaching as depicted in the Teacher Innovator System categories was once again indicated by the high correlations among teachers. But, again within that framework, certain teachers were more or less alike than others.

Teacher 105 had an above-average correlation with every other teacher but Teacher 109. Teacher 101 had an above-average correlation with six of the remaining nine teachers. Teacher 110 also had an above-average correlation with six (but a different six) of the remaining nine teachers. These teachers all taught within the same system but displayed

variations in style of feedback, negotiation, and attention to concepts.

Data from TIS Indices: Indicators of Style Variations

The Indices

Not all TIS categories were descriptive of this group of teachers, since they typically used just one teaching model. To examine variations within this basic approach across time and among teachers, we sought global measures and used ratios between sets of categories. Those ratios were referred to as indices.

Nine indices were developed for use in the basic analyses:

1. All feedback communications regardless of source, (Categories 14, 15, 16, & 17) divided by the total number of all communications recorded (SUMR1).
2. The total number of information-processing communications, regardless of source, (Categories 9, 10, 11, 12, & 13) divided by the total number of communications recorded (SUMR2).
3. The total number of structuring communications (Categories 1, 2, 3, 4, 5, 6, 7, & 8) divided by the total number of communications (SUMR3).
4. The total number of positive sanctions (Category 14) divided by the total number of negative sanctions (Category 16) recorded (SUMR4).
5. The total number of higher order communications (Categories 10 & 11) divided by the total number of lower order communications in the information-processing category (Category 9) (SUMR5).
6. The total number of negotiated structuring communications (Categories 2, 4, & 6) divided by the total number of directive structuring communications (Categories 1, 3, & 5) (SUMR6).
7. The total amount of student talk divided by the total amount of teacher talk (S01).
8. All teacher questions divided by all teacher statements (S02).
9. The total number of student questions divided by the total number of student statements (S03).

Indices 4, 5, and 6 were not productive due to the low frequency of negative sanctions, higher-order communications, and the low incidence of negotiated structuring. Because of this, they have been left out in the following analyses.

Indices Among Teachers

To determine if teachers differed significantly among themselves on any index, a one-way analysis of variance was performed for each index using the teacher as the independent variable. F-ratios and $F_{\max}$ values based on Hartley's test for homogeneity of variance in which the highest variance computed among the teachers is divided by the smallest variance) were computed.

Significant differences appear in two indices, SUMR1 and S01. To establish which teachers differed significantly, the Newman-Keuls multiple range test was employed at the .05 level.

Teachers 102, 109, and 110 provided significantly more feedback than Teachers 103, 104, 107, and 108. In Teacher 102's classroom, students contributed significantly more communications than they did in the classrooms of Teachers 104, 105, and 108.

Before beginning the data collection, we thought that the two special education teachers would differ from the rest of the teachers with respect to the Teacher Innovator System indices. Thus contrasts comparing the means of the special education teachers to all of the other teachers, and to each other's, were performed for each index.

The two special education teachers did not differ significantly from each other on any of the indices. Together, however, they differed from the other teachers on all of the indices but two -- Numbers 2 and 7. The

special education classes in South Bay School looked like the other classes in terms of quantity of information-processing communications and ratio of student talk to teacher talk. They were different from the other classrooms in terms of more feedback, less structuring, more teacher questions, and fewer student questions.

As the year progressed, it seemed likely that the three first-grade teachers operated somewhat differently from each other within the recitation mode. Thus three post hoc contrasts were performed comparing each first-grade teacher to the other. No significant differences occurred between Teachers 101 and 102 for any index, nor did any significant difference occur between Teachers 101 and 103. Significant differences occurred, however, between Teachers 102 and 103 on feedback communications, structuring communications, and student talk divided by teacher talk. More feedback occurred in Teacher 102's classroom than in Teacher 103's, while more structuring occurred in Teacher 103's classroom than in Teacher 102's. Finally, more student talk occurred in Teacher 102's classroom than in Teacher 103's.

Post hoc contrasts were also performed on each index for the two third-grade teachers and the two fifth-grade teachers, but no significant differences were found on any index for either pair of teachers.

Indices Across Lessons

To determine if any significant differences occurred between lessons, a one-way analysis of variance was performed for each index using the lesson as the independent variable. We computed F-ratios and $F_{\max}$ values. A significant F-ratio appeared for only one index, S02.

Again using the Newman-Keuls procedure, homogeneous subsets were generated. Significantly more teacher questions occurred per teacher

statements in Lesson 1 than in Lessons 2, 3, 5, 8, and 11. Lesson 1 was a reading lesson for less advanced students. The group of lessons with significantly lower means contains both reading and non-reading lessons as well as lessons with slower and with faster students. Thus it is not apparent why Lesson 1 differs from the others.

The variation among teachers for any given observation is rather large and inconsistent from lesson to lesson. To further investigate differences between lessons, we computed coefficients of correlation for each of the six indices across the 12 observation periods.

The ratio of student talk to teacher talk across lessons. The pattern of correlation for this ratio across time was mixed indeed. The coefficients ranged from a low of $-.47$ to a high of $.75$. The ratio of student talk to teacher talk was relatively unstable on the whole. However, the coefficients between the lessons where the teachers were working with the high reading groups were relatively high ($.18$, $.49$, and $.70$), indicating that teacher behavior for working with the high reading groups was relatively stable.

When the teachers were working with the low reading groups, the coefficients between conditions were $-.47$, 0.0 , and $.48$. This indicated relatively low stability across that condition. The coefficients between conditions when the teachers were working in subject matter other than reading was $.54$, indicating relative stability under that condition.

Teacher questions divided by teacher lessons across time. Again, the coefficients between the conditions where the teachers were working with

the high reading group were .18, .73, and .82. However, the coefficients between conditions when the teachers were working with the low reading group were -.50, -.01, and .13.

Overall, the picture was similar to that of S01 across lessons, with the ratio of teacher questions to statements being relatively stable when the teachers were working with the high reading ability group, but much lower between the other conditions. The range of coefficients was considerable (from -.65 to .99).

Student questions divided by student answers across lessons. This ratio was derived from a relatively low frequency of student questions and we did not expect it to be stable. That was, in fact, the case. There was a rather large range of coefficients (-.47 to .91). The coefficients between conditions when the teacher was working in subject matter other than reading were .33, .46, and .91 indicating that the ratio of student questions to statements was relatively stable across that condition. However, the ratio for the conditions under which the teacher was working with the high reading group were of a mixed pattern, as were those when the teacher was working with the low reading group. All of the other patterns, considering conditions, were mixed.

Feedback communications across lessons. The coefficients for the feedback ratio were generally positive. Of the 70 coefficients, only 12 were negative and 22 were over .50.

The coefficients from Trial 8 onward were uniformly positive, indicating a relative stability for that index in the latter trials. The coefficients between Trials 1, 7, and 9 (when the teachers were working with the low-ability group) were only .25, .13, and .16, and for Trials 2, 8, and 12 (when teachers were working with the high-ability group) were .02, .41,

and .39 respectively.

Information-processing communications across lessons. The coefficients here varied quite a bit (from $-.98$ to $.84$). A large number of them were low; many were negative. Information processing as an emphasis varied quite a bit across time.

However, for Trials 1, 7, and 9, when the teachers were working with the "low achievers" in reading, coefficients were obtained of $.15$, $.42$, and $.40$ respectively, and, for the high reading group, of $.44$, $.30$, and $.57$. For other subject matter (Trials 4, 6, and 11), the coefficients obtained were $.43$, $-.55$, and $.10$, respectively. Information processing varied quite a bit. The greatest stability occurred when the teachers were working with groups of the same ability level.

Structuring communications across lessons. Here again, the pattern is quite mixed, with a wide range of coefficients ($-.84$ to $.88$). No consistent pattern emerged except when the teachers were working with high-ability groups where the correlations were $.12$, $.54$, and $.63$.

Reading Compared to Other Subjects

To determine if styles changed when teachers were teaching a subject other than reading, we scheduled observations of both a reading lesson and a non-reading lesson on the same day, three times throughout the year, for each teacher.

We compared teachers when they were teaching reading to when they were teaching another subject with respect to all feedback communications, regardless of source. The pattern was mixed; in some cases there was more feedback when the teachers were working in reading than in the other areas, in some cases there was less.

Information-processing communications were looked at when the teachers were teaching reading and other subjects. In almost all cases, the ratio dropped when the teachers were teaching subjects other than reading, indicating that there was less information processing and greater attention to structuring or feedback when the teachers were working in areas other than reading.

Structuring communications were examined on the same basis; the attention paid to procedures or structuring rose as the teachers worked in areas other than reading.

High- and Low-Ability Groups Compared

Because of South Bay School's staggered reading program, it was possible to observe six teachers when they were working separately with students they designated as "high" and "low" in reading ability.

Basically, the recitation pattern was not altered greatly for either ability group, but some teachers varied their patterns slightly when working with a different group. There were no consistent patterns of differences, however, across all teachers.

In three classes, feedback moves were greater in frequency with the low-ability group, and in three other classes they were less. The proportion of information-processing moves was similar for both groups in five classrooms, although in the case of Teacher 108, there was about 20% less information processing with the low-ability group than with the high-ability group. Structuring moves were slightly more prominent with the low ability group in five of the six cases, though in three cases it was very close. In Teacher 107's case, however, structuring occurred two-thirds again as often with the higher-ability group as with the lower-ability group.

The amount of student talk as opposed to teacher talk remained stable from the "low" to the "high" group for only two teachers (101 and 106). Three of the remaining four teachers indicated more student talk when working with the low-ability group, while Teacher 102 produced more student talk working with the high-ability group.

The pattern with respect to teacher questions versus teacher statements varied considerably with four teachers reporting more questions with the low-ability group and two reporting more questions with the high-ability group. With respect to student questions versus statements, the teachers were evenly divided but widely spread. In Teacher 104's room, students in the low-ability group asked over 12 times as many questions per statement as did the high-ability group, while in Teacher 106's room students in the high-ability group asked 32 times as many questions per statement as did the low-ability group.

Correlations Among the Indices

Correlations were computed among the SUMR and SO ratios. Information processing and the handling of procedures and feedback were inversely correlated. Sanctions were positively correlated with the use of positive sanctions. The greater amount of student talk, and the greater the amount of feedback and information processing, the lesser the amount of procedures employed. In other words, the more the teachers used structuring moves, the less the students talked. Similarly, the greater the amount of structuring, the less the teachers asked questions. The more directive teachers controlled procedures more and asked fewer questions of their students. Student questions over student statements is a relatively unstable index. However, its correlations with feedback and structuring communications are interesting. Lower use of feedback and less information processing resulted in greater amounts of student questions; greater

amounts of structuring also resulted in greater amounts of student questions. Similarly, the more students talked, the less they seemed to ask questions, and the more teachers asked questions, the less students appeared to talk.

The overall impression is one of a pattern in which the greater the amounts of teacher dominance of various types, the less the students are able to ask questions and process data for themselves.

Discussion

All 10 teachers used a fact-oriented, materials-based recitation strategy. This was determined by the uniformly high concentration of Level 1 information-processing communications and by the high proportion of positive and corrective feedback. The low percentage of Level 2 communications indicated that concept-oriented approaches were not employed, and the general absence of Level 3 communications, open information-processing, and opinion moves shows that no personal or social models of teaching were being used. The high occurrence of instructional implementation moves and directive procedures, as opposed to the low occurrence of negotiated goals, standards, procedures, and content, indicates that the classrooms were highly structured. A positive atmosphere was shown by the rare occurrence of neutral and negative feedback. The overall picture was one of very directive teaching aimed at the mastery of facts.

There was no change in the basic teaching style over the period of the 12 observations. Although there was some increase in Level 2 and Level 3 information-processing moves in the second half of the year, it was not enough to indicate a shift in style (particularly since the increase came from only two observations of two teachers). The slight increase in open information-processing communications may indicate a slightly more

informal approach as the year progressed. The decrease in corrective feedback and increase in repetition could mean an increase in the students' storehouse of correct factual information.

The teachers were more alike than different in regard to style. This is shown by the uneven distribution of communications among the categories. There were some variations in type of feedback, amount of negotiation, and attention to concepts, but the differences were small. One teacher used considerable corrective feedback, and another used comparatively less positive feedback. One teacher generated a large portion of the negotiated communications recorded, however they were still a very small percent of that teacher's total communications. Three of the teachers generated relatively more of the higher level information-processing moves, but again they were a very small portion of their communications. As expected, there was a noticeable variation in the special education classes, in which more feedback, less structuring, more teacher questions, and fewer student questions took place.

When the variations of teachers' styles were examined across time, the results were unstable, and no cross-time trends were evident.

When we examined style by the subject of the lesson, we found that there was less information processing and greater attention to structuring when subjects other than reading were being taught.

A comparison of high- and low-ability groups indicated that some teachers varied their styles when working with the different groups. However, there were no consistent patterns of differences across all teachers. Some teachers generated more feedback with the low-ability group and others generated more with the high-ability group. The proportion of information-processing moves was similar for both groups, and in most cases there were slightly more structuring moves with the low-ability group.

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Appendix

The Teacher Innovator System

The Teacher Innovator System (TIS) is designed to describe the behavior of teachers and learners in the classroom. It is a system for classifying verbal behaviors according to a set of categories. It indicates the balance between teacher and pupil communications, the kinds of linguistic moves that are made in terms of questions and statements by each of the participants, and the pedagogical substance of the moves in terms of three major categories, nineteen subcategories, and a variety of stylistic categories. These categories have been constructed after the analysis of teaching episodes in more than 2,000 classrooms. The system has been made sensitive to wide variations of teaching styles and strategies.

The major TIS categories are *structuring*, *information-processing*, and *feedback*.

Structuring moves are those which define procedures or negotiate them. Either the teacher directs, invites the students to direct, or negotiates with the students the activities which are to take place.

In the *information-processing* dimension, the teacher and students create and handle data, they make statements to one another and question one another. The major substance of teaching episodes occurs through information-handling.

Feedback is the response generated between the teacher and student by confirming answers, objecting to others, providing corrections, etc.

There are eight sub-categories for structuring. The first six of these belong loosely to what we can call *planning* and the second two to

implementation. The planning categories alternate between *directive* and *negotiated*. Directive communications are those which tell someone what to do, and negotiated ones ask what someone would like to do or respond to a request for negotiation.

Goals and Standards (Categories 1 and 2):

These moves decide the expected outcomes of a classroom activity, such as the product, the behavioral objective, the standard of achievement or proficiency, and the criteria which will be used to evaluate outcomes. They may be either directive (1) or negotiated (2).

Content (Categories 3 and 4):

These moves set the context of the lesson within the ongoing work of the class, in terms of prior and future instructional activities, and determine the substantive focus of the activity being structured. They may be either directive (3) or negotiated (4).

Procedures (Categories 5 and 6):

These moves set the details of "who" and "how." For example, dividing a class into teams for a spelling bee, giving directions for a worksheet exercise, and describing the procedure in a concept attainment game are all procedural planning moves. Included in this category are the negotiations, which may go on at some length, when students are given the opportunity to decide how they want to go about studying a given content area. They may be either directive (5) or negotiated (6).

Instructional Implementation (Category 7):

These moves control the use of instructional materials ("Open

your books.") or the behavior of students for purely instructional purposes ("Now, look at this chart."). It does not include those instructional directives which call for cognitive activity, such as the use of manipulatives in math, the drawing of a graph, the writing of a poem, or the classifying of data nonverbally through the use of symbols drawn on the blackboard (stars, triangles, etc.). These are coded as *information-processing* at the appropriate levels.

Non-Instructional Implementation (Category 8):

These moves maintain the social environment of the classroom by enforcing the norms or rules for group and individual behavior ("Sit down and be quiet, please." "Get in line."), and to maintain the classroom as a physical environment. ("Would you clean the blackboards, Peggy?" "Open the window.")

There are five subcategories for information-processing. The first three of these relate to the cognitive levels at which information is being handled, while the last two are not specific in terms of cognitive level.

Level 1 Information Processing or Factual Level (Category 9):

The cognitive processes at this level are recalling, identifying, enumerating, describing, and translating information from one medium or mode to another (e.g., written to spoken, or iconic to symbolic). The assumption is that data are not manipulated, interrelated or transformed in any way at this level, but are given or used as given.

Level 2 Information Processing or Conceptual Level (Category 10):

Cognitive processes at this level are those which interrelate pieces of data in order to compare and/or contrast, to draw cause-

effect inferences, to interpret data, to apply what is given of general knowledge to a problem-solving situation, and to form concepts.

Level 3 Information Processing or Theoretical Level (Category 11):

This is the level at which concepts and facts are generalized and synthesized into a larger theoretical structure and at which problems are creatively or synthetically solved. Other cognitive activities at this level include hypothesizing, developing criteria, making judgments of value, and creating. In all of this, it is assumed that the thinker has taken given or remembered data and manipulated and transformed them to the point at which theoretical structures become the focus, rather than the actual facts.

Open Information Processing (Category 12):

This category is used to code questions or statements whose source or intent in terms of cognitive processes cannot be determined. Included in this category are those questions which are phrased so generally that they do not define adequately what kind of information the teacher is seeking ("Can you tell me anything about"), and those statements which are muddled, incomplete, or so oblique that cognitive level cannot be determined.

Opinion Information Processing (Category 13):

Statements or questions which express personal opinions or personal prejudices (i.e., judgments whose source and justification are personal or subjective rather than objective, empirically derived, or related to the substantive focus of a lesson) are coded as opinion. Should a lesson focus on experience-based content, the interaction is coded as information-processing at the appropriate levels, and not as opinion.

Statements which evaluate cognitive or non-cognitive behavior positively or negatively are coded as feedback. Their function as reaction is more important than as subjectively-based information. Feedback moves are divided into the following six subcategories:

Positive (Category 14):

These are moves which indicate that a verbal or non-verbal behavior is acceptable, appropriate, or correct; they may also indicate the degree of correctness. Such feedback ranges from "yes" or "right" to "That's a very interesting idea," or "You're doing a fantastic job on sets this week."

Neutral (Category 15):

This is used to code short, relatively noncommittal reactions (frequently unconscious or habitual) which indicate more that the communication was heard and understood than anything else. Examples are "um hum," "yeah," "okay." The reactions may be mildly positive in tone, and may be used when the speaker wishes to make a response, but also withhold any evaluative comment at that point.

Negative (Category 16):

This is the opposite of positive feedback. Comments in this category may range from a simple "no" or "wrong" to the more strongly evaluative "That was stupid" or equivalents.

Corrective (Category 17):

Corrective feedback is a qualified response to another's behavior, indicating to the other that he is off the track or out of line, without making an evaluative comment about that fact. A teacher may respond with "Well" or "Not quite," or by supplying the correct answer, or by simply saying "You've made a mistake." It should not be

a punishing move. Students give corrective feedback when they say, "I don't know" or when they correct another student non-punitively.

Repeat (Category 18):

This is used to code repetition of another's communication. For example, a teacher sometimes repeats a correct answer; in effect underlining it, or she may habitually repeat everything students say. Students sometimes repeat a teacher's communication (such as a correction of pronunciation).

Digression (Category 19):

This is used to code interactions which stray from the substantive focus of a lesson and from the instructional or non-instructional planning and implementation which keep a class organized and moving through classroom activities. A child's observation that today is her birthday in the midst of a discussion of urban problems is a digression.

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